

38. A light emitting semiconductor device comprising:

an arrangement of semiconductor layers for generating light in response to a conduction of current;

an optically transparent, conductive ohmic wafer-bond layer coupled to the semiconductor layers, an interface of said wafer-bond layer with the semiconductor layers exhibiting properties characteristic of layers that have undergone wafer bonding, the wafer-bond layer directly contacting the arrangement of semiconductor layers without any intervening metallic layer contact; and

contacts for applying a current to the arrangement of semiconductor layers.

39. The device of claim 38 wherein the semiconductor layers form a light emitting diode.

40. The device of claim 38 wherein the wafer-bond layer is a transparent substrate having a thickness greater than 8 mil, the transparent substrate being wafer bonded to the semiconductor wafers.

41. The device of claim 38 further comprising a second optically transparent conductive ohmic wafer-bond layer coupled to the semiconductor layers.

42. A light emitting semiconductor device comprising:

an arrangement of semiconductor layers for generating light in response to a conduction of current;

an optically transparent wafer-bond layer coupled to said semiconductor layers, an interface of said wafer-bond layer with the semiconductor layers exhibiting properties characteristic of layers that have undergone wafer bonding, including being mechanically robust; and

electrode means for applying a current to said arrangement of semiconductor layers.

43. The device of claim 42 wherein the wafer bond is directly adjacent to at least one semiconductor layer.